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MEETING ABSTRACT

A1.3

Receptor characterization of serotonin and bradykinin actions on isolated rat peripheral arteries

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Background: Serotonin, a monoamine neurotransmitter, induces vascular effects predominantly after binding to 5-HT_1 or/and 5-HT_2 receptors, while bradykinin, a pharmacologically active peptide, produces its effects through the selective activation of B_1 and B_2 kinin receptors. Accordingly, the aim of this study was to determine whether serotonin 5-HT_2 receptors and bradykinin B_2 receptors are involved in serotonin- and bradykinin-produced responses of the investigated blood vessels, respectively.

Methods: Femoral and common carotid arteries were isolated from male Wistar rats, cut into circular segments, and placed in an organ bath filled with Krebs-Ringer bicarbonate solution. Serotonin- and bradykinin-produced cumulative concentration-dependent contractile curves were obtained in vascular rings previously equilibrated at basal tone.

Results: Serotonin and bradykinin produced concentration-dependent contractions of carotid and femoral arteries, respectively. Ketanserin (a 5-HT_2 receptor antagonist) abolished serotonin-evoked contractions of examined blood vessels. On the other hand, HOE 140 (icatibant; a selective B_2 kinin receptor antagonist) significantly, but not completely, reduced the contraction induced by bradykinin in femoral arteries.

Discussion: 5-HT_2 and B_2 receptors have pivotal role in serotonin- and bradykinin-induced contractile actions in investigated blood vessels, respectively. Nevertheless, the importance of 5-HT_2 receptors was shown to be essential for the serotonin-induced effect on the common carotid artery, while we can presume that apart from B_2 receptors, bradykinin-induced contractile responses of the femoral artery probably includes parallel activation of B_1 receptors to a smaller extent.

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